IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of: Sergei Podshivalov	§	
Serial No.: 10/719,890	§	Group Art Unit: 3662
Confirmation No.: 3663	§	Examiner: Ronnie M. Mancho
Filed: October 4, 2002	§	
For: Method and Apparatus for Distribution of Satellite Navigation Data	§	

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

The Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences pursuant to the Notice of Appeal filed on May 15, 2006. Please charge counsel's Deposit Account No. 50-3562 the small-entity fee of $250.00 for filing this brief.

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Real Party in Interest

The real party in interest is Global Locate, Inc., located in San Jose, CA.

Related Appeals and Interferences

No other appeals or interferences that are directly affected by, or have a bearing on the Board's decision in the pending Appeal are known to the Appellants, the Appellants' legal counsel or the Assignee.

Status of Claims

Claims 1-20 are pending in the application and were finally rejected in the Final Office Action mailed December 13, 2005. The rejection of each of the claims 1-20 is presently appealed. A copy of the claims 1-20 presently pending are shown in the attached Appendix.

Status of Amendments

No amendments to the claims were submitted in this application subsequent to final rejection.

Summary of Claimed Subject Matter

The presently claimed invention is directed to a method and apparatus for distributing satellite-navigation data. As part of the claimed subject matter, each of a plurality of reference stations process satellite signals so as to receive a respective plurality of satellite-navigation-data streams that are carried within such satellite signals. These received satellite-navigation-data streams may be, for example, a plurality of GPS navigation messages.

Responsive the received satellite-navigation-data streams, packets are formed so as to generate a plurality of packetized satellite-navigation-data streams. Sometime thereafter, the plurality of packetized satellite-navigation-data streams is sent to a processing system. The processing system, in turn, removes duplicate packets from within the plurality of packetized satellite-navigation-data streams so as to generate a combined-packet stream. After so generating, the combined-packet stream is sent into a communication network.

By generating the combined-packet stream without extracting satellite data (e.g.,

ephemeris data, almanac data, ionosphere data, etc.) from the satellite-navigation data of the packetized or received satellite-navigation-data streams, the combined-packet stream includes unduplicated satellite-navigation data, such as a plurality of unduplicated GPS navigation messages. In addition, by generating the combined-packet stream as such, undesirable latency between reception of the satellite signals and the distribution of the satellite-navigation data is reduced. This is because each of the reference stations need not extract the satellite data from the satellite-navigation data of the satellite-navigation-data streams.

Instead, duplicate packets of the packetized satellite-navigation-data streams (which include the satellite-navigation data) are removed without extracting the satellite data. This allows for later extracting the satellite data from the unduplicated satellite-navigation data of the combined-packet stream; and such decoding yields only unduplicated satellite data. Accordingly, the combined-packet stream obviates the need for (i) each of the reference stations to extract satellite data from each of the satellite-navigation data received from each of the satellites, (ii) some device to aggregate the extracted satellite data from all the reference stations; and (iii) some device to remove duplicative occurrences of the extracted satellite data.

By reducing the latency between collection of the satellite-navigation streams and distribution of the satellite data, operation of a remote receiver using the satellite data may be enhanced. For example, ephemeris in use by a remote receiver may become invalid due to an unhealthy satellite. In conventional distribution, the remote receiver, however, will continue to use the invalid ephemeris for several minutes while waiting for the reference stations to receive, extract, store and distribute an entire ephemeris model before sending updated ephemeris. By using the Appellants invention, which is operable to reduce this latency (i.e., eliminating the time needed by each of a plurality of conventional reference stations to receive, decode, store and distribute the entire ephemeris model (e.g., 900 bit GPS message)), the amount of time the remote receiver uses invalid ephemeris is reduced, which in turn, enhances accuracies of position calculations of the remote receiver.

In addition to the foregoing, the claimed subject matter also includes decoding satellite-navigation data within the combined-packet stream to generate satellite data. This satellite data comprises any of ephemeris data, almanac data, ionosphere data, universal-time-offset data, satellite-health data, and raw data bits.

In one embodiment, a position-location server receives the combined-packet stream; the satellite-navigation data of which is thereafter decoded to yield the satellite data. The

satellite data is stored in a cache disposed within the position-location server.

In addition, as part of the claimed subject matter, the position-location server receives one or more additional packetized satellite-navigation-data streams, and then removes duplicate packets from within the additional packetized satellite-navigation-data and combined-packet streams so as to generate another (e.g., a second) combined-packet stream. Like above, after satellite data is generated by decoding satellite-navigation data of the second combined-packet stream, it is stored in a cache disposed within the position-location server.

As part of the claimed subject matter, the additional packetized satellite-navigation-data streams received by the position-location server are generated by a hub of the processing system and/or a reference station disposed proximate to the position-location server. When generating the additional packetized satellite-navigation-data streams, the hub and/or the proximate reference station form packets responsive to receiving satellite-navigation-data streams that are processed from satellite signals.

Each of the packets formed to generate the packetized satellite-navigation-data streams and/or the additional packetized satellite-navigation-data streams, as part of the claimed subject matter, comprises a subframe of a GPS satellite-navigation message and/or header having a satellite identifier and a time-of-week (TOW) value. And as another part of the claimed subject matter, each of the duplicate packets is removed responsive to the satellite identifier and the TOW value.

The Appellants now summarize independent claims 1, 11 and 20 and specify where support can be found in the specification and drawings, if any. It should be understood that the appealed claims may read on other portions of the specification or other figures that are not listed below.

In claim 1, each of a plurality of reference stations (102) process satellite signals to receive a respective plurality of satellite-navigation-data streams. *See present specification*, at ¶¶ 0011-0014; FIG. 1. Responsive the received satellite-navigation-data streams, packets are formed so as to generate a plurality of packetized satellite-navigation-data streams. *See present specification*, at ¶¶ 0011-0014; FIG. 1. Sometime thereafter, the plurality of packetized satellite-navigation-data streams is sent to a processing system. *See present specification*, at ¶¶ 0011-0014; FIG. 1. The processing system, in turn, removes duplicate packets from within the plurality of packetized satellite-navigation-data streams so as to generate a combined-packet stream. *See present specification*, at ¶¶ 0011-0023;

FIGS. 1-6. After so generating, the combined-packet stream is sent into a communication network. *See present specification*, at ¶¶ 0011-0023; FIGS. 1-6.

Claim 11 recites a system (100) for distributing satellite navigation data. The system includes a plurality of reference stations (102) and a processing system (116). *See present specification*, at ¶¶ 0011-0014; FIG. 1. The reference stations (102) are operable to process satellite signals to (i) receive a respective plurality of satellite-navigation-data streams, and (ii) form packets, in response to the plurality of satellite-navigation-data stream, to generate a plurality of packetized satellite-navigation-data streams. *See present specification*, at ¶¶ 0011-0014; FIG. 1. The processing system (116) is operable to (i) receive each of the plurality of packetized satellite-navigation-data streams, (ii) remove duplicate packets within the plurality of packetized satellite-navigation-data streams to generate a combined-packet stream, and (iii) send the combined-packet stream into a communication network. *See present specification*, at ¶¶ 0011-0023; FIGS. 1-6.

Claim 20 recites an apparatus (600) for distributing satellite navigation data. *See present specification*, at ¶¶ 0022-0023; FIG. 6. The apparatus (600) includes a means for processing satellite signals at each of a plurality of reference stations (102) to receive a respective plurality of satellite-navigation-data streams. *See present specification*, at ¶¶ 0011-0023; FIGS. 1-6. The apparatus (600) also includes a means for forming packets (601) in response to the plurality of satellite-navigation-data streams to generate a plurality of packetized satellite-navigation-data streams. *See present specification*, at ¶¶ 0011-0023; FIGS. 1-6. The apparatus (600) further includes a means for sending (604) each of the plurality of packetized satellite navigation-data-streams to a processing system (601). *See present specification*, at ¶¶ 0011-0023; FIGS. 1-6. The apparatus (600) also includes a means for removing (600), at the processing system (601), duplicate packets within the plurality of packetized satellite-navigation-data streams to generate a combined-packet stream. *See present specification*, at ¶¶ 0011-0023; FIGS. 1-6. The apparatus (600) moreover includes a means for sending (604) the combined-packet stream into a communication network.

Grounds of Rejection to be Reviewed on Appeal

Claims 1-20 stand rejected under 35 U.S.C. § 102(e) as being anticipated by United States Patent No. 6,813,560, issued on November 2, 2004 to van Diggelen et al. (*"van Diggelen"*). Claims 1-20 also stand rejected under 35 U.S.C. §102(e) as being anticipated by United States Patent No. 6,799,116, issued on September 28, 2004 to Robbins (*"Robbins"*).

ARGUMENT

I. THE EXAMINER ERRED IN REJECTING CLAIMS 1-20 BECAUSE VAN DIGGELEN FAILS TO ANTICIPATE ALL THE ELEMENTS OF EACH OF THE CLAIMS.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). Because *van Diggelen* lacks at least one element of each of the independent claims 1, 11 and 20, namely, the claimed elements directed to the *combined-packet stream, including the functions associated with generating, processing and/or using the combined-packet steam*, the Appellants submit that *van Diggelen* does not anticipate the claimed invention under 35 U.S.C. §102(e).

As set forth in the Office Action mailed December 13, 2005, the Examiner's entire rejection of claims 1-20 states *van Diggelen* "anticipates the limitations of claims 1-20 as the specification contains the exact limitations disclosed in claims 1-20 (paragraph 2 of Office Action mailed December 13, 2005). The Appellants disagree.

van Diggelen generally teaches "a method and apparatus for distribution and delivery of global positioning system (GPS) satellite telemetry data using a communication link between a central site and a mobile GPS receiver." *van Diggelen,* at abstract. "The central site is coupled to a network of reference satellite receivers that send telemetry data from all satellites to the central site." *Id.* "The mobile GPS receiver uses the delivered telemetry data to aid its acquisition of the GPS satellite signal." *Id.*

As noted, however, *van Diggelen* fails to teach or suggest the combination of claimed elements of independent claims 1, 11 and 20 directed to the *combined-packet stream*, including any and all functions associated with generating, processing and/or using the combined-packet steam. That is, for example, *van Diggelen* fails to teach or suggest the

combination of claimed elements directed to the functions of (i) *processing satellite signals at each of a plurality of reference stations to receive a respective plurality of satellite-navigation-data streams*, (ii) *forming packets, responsive to receiving these satellite-navigation-data streams, to generate a plurality of packetized satellite-navigation-data streams, and (iii) removing duplicate packets from within the plurality of packetized satellite-navigation-data streams so as to generate a combined-packet stream*.

According to the background of *van Diggelen* "[c]onventional GPS receivers require an inordinate amount of time to acquire and lock onto the satellite signals." *van Diggelen*, at col. 1, lines 25-26. "Then, once locked, a GPS receiver extracts telemetry data (almanac and ephemeris) from the signal." *Id.*, at col. 1, lines 26-28. "From these data the GPS receiver can calculate information that enhances its ability to lock onto the satellite signal." *Id.*, at col. 1, lines 28-31. "Once the GPS signal is acquired, the signal strength must remain high while the almanac and/or ephemeris data is extracted from the satellite signal." *Id.*, at col. 1, lines 32-36.

In addition, *van Diggelen* discusses the GPS Interface Control Document, ICD-GPS-200-B. *Id.*, at col. 5, line 54. The ICD-GPS-200-B clearly defines the GPS satellite-navigation message, and in turn, the components thereof, which include ephemeris and almanac information. The ICD-GPS-200-B also provides information for extracting or otherwise obtaining (collectively "extracting") from the GPS satellite-navigation message the ephemeris, almanac, clock and other information.

Moreover, the detailed description of *van Diggelen* states "[t]o obtain all the ephemeris data, three or more tracking stations 104 are needed." *Id.*, at col. 4, lines 4-5. "Each of the tracking stations 104 contains a GPS receiver 126 that acquires and tracks satellite signals from all satellites 106 that are in view." *Id.*, at col. 4, lines 16-18. "The stations 104 extract the ephemeris information that uniquely identifies the position of each satellite as well as satellite clock information e.g., a 900 bit packet with[in] a GPS signal" (emphasis added). *Id.*, at col. 4, lines 18-21.

"The ephemeris information is coupled to the central processing site 108 via, for example, a terrestrial land line network 105." *Id.*, at col. 4, lines 21-23. "[The] central processing site 108 that collects the ephemeris from the tracking stations 104 comprises an ephemeris processor 128 that removes duplicate occurrences of the same ephemeris, and provides the latest ephemeris data for redistribution to mobile GPS receivers 114 and 118" (ephemeris added). *Id.*, at col. 3, lines 41-46.

Whereas each the reference stations of *van Diggelen* extracts from satellite signals the entire ephemeris model (e.g., 900 bits) for distribution to its central site, which in turn, removes duplicate occurrences of the entire ephemeris model, the claimed invention *removes, without extracting satellite data (e.g., ephemeris) from the packetized or received satellite-navigation-data streams, duplicate packets from the plurality of packetized satellite-navigation-data streams to generate the combined-packet stream*. *See, e.g., the Applicants specification*, at ¶0003-0026. This way, the combined-packet stream includes unduplicated satellite-navigation data, from which satellite data can be extracted by decoding such unduplicated satellite-navigation data. Decoding of the unduplicated satellite-navigation data yields only unduplicated satellite data.

Notably, by generating the combined-packet stream without extracting the satellite data from the packetized or received satellite-navigation-data streams, undesirable latency between reception of the satellite signals and the distribution of the satellite data is reduced. *See, e.g., Id.,* at ¶0005. As noted above, this (at least in part) is because each of the reference stations of the present invention need not extract the satellite data from each of satellite-navigation data streams to produce, for example, an ephemeris model. Instead, duplicate packets of the packetized satellite-navigation-data streams are removed without extracting the satellite data. Accordingly, the combined-packet stream obviates the need for the need for (i) each of the reference stations to extract satellite data from each of the satellite-navigation data received from each of the satellites, (ii) some device to aggregate the extracted satellite data from all the reference stations; and (iii) some device to remove duplicative occurrences of the extracted satellite data.

By reducing the latency between collection and distribution of the satellite-navigation data, operation of a remote receiver using the satellite-navigation data may be enhanced. *See, e.g., Id.* For example, ephemeris in use by a remote receiver may become invalid due to an unhealthy satellite. *See, e.g., Id.* The remote receiver, however, will continue to use the invalid ephemeris for several minutes before receiving updated ephemeris. *See, e.g., Id.* By reducing this latency (i.e., eliminating the time needed by each of a plurality of conventional reference stations to receive satellite-navigation data, extract ephemeris, and store and distribute an entire ephemeris model (e.g., 900 bits)), the amount of time the remote receiver uses invalid ephemeris is reduced. *See, e.g., Id.*

Because *van Diggelen* lacks at least one element of each of the independent claims 1, 11 and 20, namely the claimed elements directed to the *combined-packet stream, including the functions associated with generating, processing and/or using the combined-*

packet steam, the Appellants submit that *van Diggelen* does not anticipate the claimed invention under 35 U.S.C. §102(e). In addition, claims 2-10 and 12-19 depend, either directly or indirectly, from one of the independent claims 1 and 11. Because the Appellants contend that *van Diggelen* fails to anticipate the independent claims 1 and 11 for the reasons set forth above, the Appellants further submit that *van Diggelen* likewise fails to anticipate each of the dependent claims 2-10 and 12-19. Thus, the Appellants submit that the claims 1-20 fully satisfy the requirements of 35 U.S.C. §102, and therefore, are allowable. Accordingly, the Appellants submit that the aforementioned rejection should be withdrawn and the claims allowed.

In addition to the foregoing, claims 2, 8, 9, 12, 18 and 19 specifically add to claim 1 or claim 11 the claimed elements "decoding satellite-navigation data from the *combined-packet stream* to generate satellite data." The Examiner has not cited any specific portion of *van Diggelen* to form the basis of the rejection claims 2, 8, 9, 12, 18 and 19. Notwithstanding the lack such specific citation, *van Diggelen*, as noted above, is entirely devoid of any teaching or suggestion of the claimed *combined-packet stream.* As such, *van Diggelen* is entirely devoid of any teaching or suggestion of performing any operation to the claimed *combined-packet stream.*

Similarly, claims 3 and 13 specifically add to claim 1 and claim 11, respectively, that the satellite data that is generated by decoding the satellite-navigation data from the *combined-packet stream* comprises any of ephemeris data, almanac data, ionosphere data, universal-time-offset data, satellite-health data, and raw data bits. The Examiner has not cited any specific portion of *van Diggelen* to form the basis of the rejection claims 3 and 13. Notwithstanding the lack of such specific citation, *van Diggelen*, as noted above, is entirely devoid of any teaching or suggestion of the claimed *combined-packet stream.* As such, *van Diggelen* is entirely devoid of any teaching or suggestion of performing any operation to the claimed *combined-packet stream.*

Claims 4-6 and 14-16 specifically add to claim 1 and claim 11, respectively, that (i) each of the packets formed to generate the plurality of packetized satellite-navigation-data streams include a subframe of GPS satellite-navigation messages (claim 4 and 14); (ii) each of the packets formed to generate the plurality of packetized satellite-navigation-data streams include a header having a satellite identifier and time-of week (TOW) value (claims 5 and 15); and (iii) each of the duplicate packets is removed in response to the satellite identifier and TOW value (claims 6 and 16). The Examiner has not cited any specific portion of *van Diggelen* to form the basis of the rejection claims 4-6 and 14-16. Notwithstanding the

lack of such specific citation, the Appellants submit that *van Diggelen* is entirely devoid of any teaching or suggestion of such claimed subject matter.

Claims 7-10 and 17-19 respectively add to claim 1 and claim 11 (i) a hub and a position-location server, and the position-location server is operable to receive the combined-packet stream (claim 7 and 17); (ii) that the position-location server is operable to receive one or more additional packetized satellite-navigation-data streams, remove duplicate packets from the combined-packet and additional packetized satellite-navigation-data streams to generate another combined-packet stream, and decode the satellite-navigation data of this other combined-packet stream to generate satellite data (claims 8 and 18); and (iii) that the additional packetized satellite-navigation-data stream is generated by an additional hub and a reference station disposed proximate to the position-location server (claims 9 and 19). The Examiner has not cited any specific portion of *van Diggelen* to form the basis of the rejection claims 7-9 and 17-19. Notwithstanding the lack of such specific citation, the Appellants submit that with respect to claims 7 and 17 *van Diggelen* is entirely devoid of any teaching or suggestion of such claimed subject matter. With respect to claims 8-9 and 18-19, *van Diggelen*, as noted above, is entirely devoid of any teaching or suggestion of the claimed *combined-packet stream.* As such, *van Diggelen* is entirely devoid of any teaching or suggestion of performing any operation to the claimed *combined-packet stream.*

In view of the foregoing, the Appellants submit that *van Diggelen* lacks at least one element of each of the dependent claims 2-10 and 11-19, and therefore, does not anticipate such claims. Accordingly, the Appellants submit that these dependent claims are separately allowable, and request that the rejection be withdrawn and the claims allowed.

II. THE EXAMINER ERRED IN REJECTING CLAIMS 1-20 BECAUSE ROBBINS FAILS TO ANTICIPATE ALL THE ELEMENTS OF EACH OF THE CLAIMS.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221 USPQ 481, 485 (Fed. Cir. 1984). Because *Robbins* lacks at least one element of each of the independent claims 1, 11 and 20, namely the claimed elements directed to the *combined-packet stream, including the functions associated with generating, processing and/or using the combined-packet steam*, the Appellants submit that *Robbins* does not anticipate the claimed invention under 35 U.S.C. §102(e).

As set forth in the Office Action mailed December 13, 2005, the Examiner stated, with respect to claim 1, that *Robbins* at its abstract, Figs. 1, 8-30 "discloses a method of distributing satellite navigation data." *Office Action mailed December 13, 2005*, at page 3. To this end, the Examiner stated *Robbins* teaches "processing satellite signals at each of a plurality of reference stations to receive a respective plurality of satellite navigation data streams (col. 3, lines 48-67; col. 4, lines 48-67, col. 5, lines 1-67); forming packets (fig. 8) in response to said plurality of satellite navigation data streams to generate a plurality of packetized satellite navigation data streams; sending each of said plurality of packetized satellite navigation data streams to a processing system (col. 7, lines 59 to col. 8, lines 1-67); removing (updating, col. 5, lines 36-45; throw out, col. 14, lines 51-54, lines 38-34; col. 18, lines 36-46) at said processing system, duplicate packets within said plurality of packetized satellite navigation data streams to generate a combined packet stream; and sending said combined packet stream into a communication network." *Office Action mailed December 13, 2005*, at pages 3-4. In view of these citations, the Examiner concluded that the teachings of *Robbins* anticipate the Appellants invention. The Appellants respectfully disagree.

Robbins generally teaches "collecting measurements from a plurality of network reference stations; determining network corrections from the measurements; determining residual errors at one or more vernier-cell referred stations; and preparing vernier-cell corrections to compensate the residual errors within a vernier-cell region." *Robbins,* at its abstract. "Network correction streams are described and illustrated which contain network corrections derived from a plurality of network reference stations and residual error corrections derived from one or more vernier-cell reference stations." *Id*. "Methods and apparatus are described for employing such network correction streams in a virtual reference station to produce corrections and/or virtual measurements for use in a GPS receiver." *Id.*

As noted, however, *Robbins* fails to teach or suggest the combination of claimed elements of independent claims 1, 11 and 20 directed to the *combined-packet stream*, including any and all functions associated with generating, processing and/or using the combined-packet steam. That is, for example, *Robbins* fails to teach or suggest the combination of claimed elements directed to the functions of (i) *processing satellite signals at each of a plurality of reference stations to receive a respective plurality of satellite-navigation-data streams*, (ii) *forming packets, responsive to receiving these satellite-navigation-data streams, to generate a plurality of packetized satellite-navigation-data*

streams, and (iii) removing duplicate packets from within the plurality of packetized satellite-navigation-data streams so as to generate a combined-packet stream.

To begin with, *Robbins* fails to teach or suggest the claimed elements *forming packet to generate a plurality of packetized satellite-navigation-data streams.* Contrary to the Examiner's assertions that *Robbins,* when creating its composite data stream (CDS), *forms packets to generate a plurality of packetized satellite-navigation-data streams* to create the composite data stream CDS, the reference stations and/or a data collection hub DCH of *Robbins* extract satellite measurements from received satellite signals.

To this end, *Robbins* discloses an "[i]nfrastructure subsystem 105 [that] comprises a number of reference stations RS1, RS2, RS3, . . . , RSN, a data collection hub DCH, data-transmission channels DT1, DT2, DT3, . . . , DTN communicating data from the reference stations to the data collection hub, and a network processor NP." *Id.*, at col. 3, lines 55-61. "Data collection hub DCH collects data from the reference stations RS1-RSN and produces a composite data stream CDS which is formatted for transfer to network processor NP" (emphasis added) *Id.*, at col. 4, lines 18-20.

In addition, *Robbins* specifically discloses, as Fig. 6, "a flow chart illustrating preparation of a composite data stream in accordance with embodiments of the invention" (emphasis added) *Id.*, at col. 7, lines 53-55. "As shown at operation 605, data are received from the reference stations at the data collection hub DCH." *Id.*, at col. 7, lines 55-56. "The data from each reference station include messages from the GPS satellites and measurements made at the reference station" (emphasis added). *Id.*, at col. 7, lines 56-59. "At 610, the data from the reference stations are prepared for transmission, e.g., by preparing **data packets which identify the reference station and message type and which include data appropriate to the message type**" (emphasis added). *Id.*, at col. 7, lines 59-62. "**The message types are, e.g., (i) measurements such as pseudorange PR and phase φ for each of the L1 and L2 frequencies for each satellite in view at the reference station, typically at a rate of .about. ~1 Hz, (ii) ephemerides for each satellite in view at the reference station, typically once each two hours, and (iii) iono parameters and time parameters, which are provided sporadically"** (emphasis added). *Id.*, at col. 7, line 62 to col. 8, line 2. "At 615, the data collection hub DCH inserts the messages in the composite data stream CDS which is transmitted to the network processor NP." *Id.*, at col. 8, lines 2-4.

Clearly, the above-quoted language indicates that the data collection hub DCH of *Robbins* prepares the data packets of composite data stream DCS ("DCS packets") using

message-type identifiers that indicate the data contained therein, and such data is the type of data extracted from messages of satellite signals. *See also, ICD-GPS-200-B*. Accordingly, to prepare the DCS packets, the data collection hub DCH has to either obtain such extracted data from the from its reference stations or extract the data from the information provided from the reference stations itself. In either case, when preparing the DCH packets of the composite data stream CDS, unlike *forming packets to generate a plurality of packetized satellite-navigation-data streams* as claimed, the data collection hub DCH prepares DCH packets that include satellite data extracted from the satellite signals. Accordingly, *Robbins* lacks at least one element of each of the independent claims 1, 11 and 20, and therefore, does not anticipate the claimed invention under 35 U.S.C. §102(e).

Notwithstanding the foregoing and assuming (for argument's sake) that *Robbins* teaches or suggest the claimed elements *forming packet to generate a plurality of packetized satellite-navigation-data streams*, *Robbins* nonetheless fails to teach or suggest the claimed elements *removing duplicate packets from within the plurality of packetized satellite-navigation-data streams so as to generate a combined-packet stream.*

Contrary to the Examiner's assertions that *Robbins,* when creating its the network-connection stream (NCS), *removes duplicate packets from the plurality of packetized satellite-navigation-data streams to generate the combined-packet stream* as claimed to create its network connection stream NCS, the network processor NP of *Robbins* does not remove duplicate packets. Accordingly, *Robbins* does not teach that its network connection stream NCS includes unduplicated satellite-navigation data from which satellite data can be extracted. Instead, *Robbins* teaches that its network connection stream NCS includes duplicative extracted measurements of each of the satellites that are received from all the reference stations tracking such satellite.

To this end, Robbins specifically states that its "[n]etwork processor NP receives data from all reference stations in the composite data stream CDS and uses these data to estimate errors in the satellite ephemerides and clock polynomials broadcast by the GPS satellites" (emphasis added). *Id.*, at col. 4, lines 48-51. "Before transmission **from** the network processor NP, **corrections for each satellite are tested against measurements from all reference stations tracking that satellite**" (emphasis added). *Id.*, at col. 4, lines 55-57. "If the residuals from that test are not satisfactory, the worst reference station is excluded, and the calculations are repeated without the excluded reference station" (emphasis added). *Id.*, at col. 4, lines 57-60. "This process is iterated until either

satisfactory correction data are obtained or the satellite is declared unusable" (emphasis added). *Id.*, at col. 4, lines 60-63.

Clearly, the above-quoted language indicates that the network process NP of *Robbins* prepares the network correction stream NCS using duplicative satellite measurements from all reference stations. In fact, the network process NP of *Robbins* tests each of the duplicative satellite measurements so as to remove from its network correction stream NCS satellite measurements measured by one or more references station(s) that cause unsatisfactory corrections. Thus, any removal of the duplicative satellite measurements from all reference stations by the network processor NP to create the network correction stream NCS is done on the basis of a comparison extracted satellite data. This clearly is not the same as the claimed element *removing duplicate packets within the plurality of packetized satellite navigation data streams to generate a combined packet stream*, as claimed.

Because *Robbins* lacks at least this element of each of the independent claims 1, 11 and 20, the Appellants submit that *Robbins* does not anticipate the claimed invention under 35 U.S.C. §102(e). In addition, claims 2-10 and 12-19 depend, either directly or indirectly, from one of the independent claims 1 and 11. Because the Appellants contend that *Robbins* fails to anticipate the independent claims 1 and 11 for the reasons set forth above, the Appellants further submit that *Robbins* likewise fails to anticipate each of the dependent claims 2-10 and 12-19. Thus, the Appellants submit that the claims 1-20 fully satisfy the requirements of 35 U.S.C. §102, and therefore, are allowable. Accordingly, the Appellants submit that the aforementioned rejection should be withdrawn and the claims allowed.

In addition to the foregoing, claims 2, 8, 9, 12, 18 and 19 specifically add to claim 1 or claim 11 the claimed elements "decoding satellite-navigation data from the *combined-packet stream* to generate satellite data." The Examiner cited to *Robbins* at its abstract; Figs. 1, 8-30; and cols. 4, 5, 7, 8, 15, 16, 17 and 18 to form the basis of the rejection claims 2, 8, 9, 12, 18 and 19. Notwithstanding this specific citation, *Robbins*, as noted above, is entirely devoid of any teaching or suggestion of the claimed *combined-packet stream.* As such, *Robbins* is entirely devoid of any teaching or suggestion of performing any operation to the claimed *combined-packet stream.* Further, as noted above, the network connection stream NCS, unlike the *claimed combined-packet stream*, includes the duplicative satellite measurements from all reference stations.

Similarly, claims 3 and 13 specifically add to claim 1 and claim 11, respectively, that the satellite data that is generated by decoding the satellite-navigation data from the

combined-packet stream comprises any of ephemeris data, almanac data, ionosphere data, universal-time-offset data, satellite-health data, and raw data bits. The Examiner cited to *Robbins* at its abstract; Figs. 1, 8-30; and cols. 4, 5, 7, 8, 15, 16, 17 and 18 to form the basis of the rejection claims 2, 8, 9, 12, 18 and 19. Notwithstanding this specific citation, *Robbins*, as noted above, is entirely devoid of any teaching or suggestion of the claimed *combined-packet stream.* As such, *Robbins* is entirely devoid of any teaching or suggestion of performing any operation to the claimed *combined-packet stream.* Further, as noted above, the network connection stream NCS includes extracted satellite measurements from all reference stations. Therefore, *Robbins* has no need to extract already extracted satellite measurements.

Claims 4-6 and 14-16 specifically add to claim 1 and claim 11, respectively, that (i) each of the packets formed to generate the plurality of packetized satellite-navigation-data streams include a subframe of GPS satellite-navigation messages (claim 4 and 14); (ii) each of the packets formed to generate the plurality of packetized satellite-navigation-data streams include a header having a satellite identifier and time-of week (TOW) value (claims 5 and 15); and (iii) each of the duplicate packets is removed in response to the satellite identifier and TOW value (claims 6 and 16). The Examiner cited to *Robbins* at its abstact; Figs. 1, 8-30; and cols. 4, 5, 7, 8, 15, 16, 17 and 18 to form the basis of the rejection claims 2, 8, 9, 12, 18 and 19. Notwithstanding this specific citation, the Appellants submit that *Robbins* is entirely devoid of any teaching or suggestion of such claimed subject matter.

Claims 7-10 and 17-19 respectively add to claim 1 and claim 11 (i) a hub and a position-location server, and the position-location server is operable to receive the combined-packet stream (claim 7 and 17); (ii) that the position-location server is operable to receive one or more additional packetized satellite-navigation-data streams, remove duplicate packets from the combined-packet and additional packetized satellite-navigation-data streams to generate another combined-packet stream, and decode the satellite-navigation data of this other combined-packet stream to generate satellite data (claims 8 and 18); and (iii) that the additional packetized satellite-navigation-data stream is generated by an additional hub and a reference station disposed proximate to the position-location server (claims 9 and 19). The Examiner cited to *Robbins* at its abstact; Figs. 1, 8-30; and cols. 4, 5, 7, 8, 15, 16, 17 and 18 to form the basis of the rejection claims 2, 8, 9, 12, 18 and 19. Notwithstanding this specific citation, *Robbins*, as noted above, is entirely devoid of any teaching or suggestion of the claimed *combined-packet stream.* As such, *Robbins* is entirely devoid of any teaching or suggestion of performing any operation to the claimed

combined-packet stream.

In view of the foregoing, the Appellants submit that *Robbins* lacks at least one element of each of the dependent claims 2-10 and 11-19, and therefore, does not anticipate such claims. Accordingly, the Appellants submit that these dependent claims are separately allowable, and request that the rejection be withdrawn and the claims allowed.

Conclusion

Thus, the Appellants submit that claims 1-20 are not anticipated under the provisions of 35 U.S.C. §102. Accordingly, the Appellants believe that these claims are presently in condition for allowance. For the reasons advanced above, the Appellants respectfully submit that the rejection of claims 1-20 as being anticipated under 35 U.S.C. §102 is improper. Reversal of the rejection of the Final Office Action is respectfully requested.

Respectfully submitted,

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CLAIMS APPENDIX

1. (Original) A method of distributing satellite navigation data, comprising:

processing satellite signals at each of a plurality of reference stations to receive a respective plurality of satellite navigation data streams;

forming packets in response to said plurality of satellite navigation data streams to generate a plurality of packetized satellite navigation data streams;

sending each of said plurality of packetized satellite navigation data streams to a processing system;

removing, at said processing system, duplicate packets within said plurality of packetized satellite navigation data streams to generate a combined packet stream; and

sending said combined packet stream into a communication network.

2. (Original) The method of claim 1, further comprising:

decoding satellite navigation data within said combined packet stream to generate satellite data.

3. (Original) The method of claim 2, wherein said satellite data comprises at least one of ephemeris data, almanac data, ionosphere data, universal time offset data, satellite health data, and raw data bits.

4. (Original) The method of claim 1, wherein said plurality of satellite navigation data streams comprises global positioning system (GPS) satellite navigation messages, and wherein each of said packets includes a sub-frame of said GPS satellite navigation messages.

5. (Original) The method of claim 4, wherein each of said packets includes a header having a satellite identifier and a time-of-week (TOW) value.

6. (Original) The method of claim 5, wherein each of said duplicate packets is removed in response to said satellite identifier and said TOW value associated therewith.

7. (Original) The method of claim 1, wherein said processing system comprises a hub, and the method further comprises:

receiving said combined packet stream from said communication network at a position location server.

8. (Original) The method of claim 7, further comprising:

decoding satellite navigation data within said combined packet stream to generate satellite data; and

storing said satellite data in a cache disposed within said position location server.

9. (Original) The method of claim 7, further comprising:

receiving, at said position location server, at least one additional packetized satellite navigation data stream;

removing duplicate packets within said combined packet stream and said at least one additional packetized satellite navigation data stream to generate another combined packet stream;

decoding satellite navigation data within said other combined packet stream to generate satellite data; and

storing said satellite data in a cache disposed within said position location server.

10. (Original) The method of claim 9, wherein said at least one additional packetized satellite navigation data stream is generated by at least one of an additional hub and a reference station disposed proximate to said position location server.

11. (Original) A system for distributing satellite navigation data, comprising:

a plurality of reference stations for processing satellite signals to receive a respective plurality of satellite navigation data streams and forming packets in response to said plurality of satellite navigation data streams to generate a plurality of packetized satellite navigation data streams; and

a processing system for receiving each of said plurality of packetized satellite navigation data streams, removing duplicate packets within said plurality of packetized satellite navigation data streams to generate a combined packet stream, and sending said combined packet stream into a communication network.

12. (Original) The system of claim 11, wherein said processing system includes a processor for decoding satellite navigation data within said combined packet stream to generate satellite data.

13. (Original) The system of claim 12, wherein said satellite data comprises at least one of ephemeris data, almanac data, ionosphere data, universal time offset data, satellite health data, and raw data bits.

14. (Original) The system of claim 11, wherein said plurality of satellite navigation data streams comprises global positioning system (GPS) satellite navigation messages, and wherein each of said packets includes a sub-frame of said GPS satellite navigation messages.

15. (Original) The system of claim 14, wherein each of said packets includes a header having a satellite identifier and a time-of-week (TOW) value.

16. (Original) The system of claim 15, wherein each of said duplicate packets is removed in response to said satellite identifier and said TOW value associated therewith.

17. (Original) The system of claim 11, wherein said processing system comprises a hub, and the system further comprises:

a position location server for receiving said combined packet stream.

18. (Original) The system of claim 17, wherein said position location server comprises:

a processor for decoding satellite navigation data within said combined packet stream to generate satellite data, and

a memory for storing said satellite data.

19. (Original) The system of claim 17, further comprising:

an additional reference station disposed proximate to said position location server for providing at least one additional packetized satellite navigation data stream;

wherein said position location server comprises:

a processor for removing duplicate packets within said combined packet stream and said at least one additional packetized satellite navigation data stream to

generate another combined packet stream and decoding satellite navigation data within said other combined packet stream to generate satellite data; and

a memory for storing said satellite data.

20. (Original) An apparatus for distributing satellite navigation data, comprising:

means for processing satellite signals at each of a plurality of reference stations to receive a respective plurality of satellite navigation data streams;

means for forming packets in response to said plurality of satellite navigation data streams to generate a plurality of packetized satellite navigation data streams;

means for sending each of said plurality of packetized satellite navigation data streams to a processing system;

means for removing, at said processing system, duplicate packets within said plurality of packetized satellite navigation data streams to generate a combined packet stream; and

means for sending said combined packet stream into a communication network.

EVIDENCE APPENDIX

[None]

RELATED PROCEEDINGS APPENDIX

[None]